

CLAIMS

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- 1) Operating head for automatic machine tools of the type comprising a structure (2) which moves along a set of three Cartesian axes, a first support (3), fitted to the said structure in such a way that it can rotate around a first axis (C), and a chuck unit (5) fitted to the said support, wherein the said chuck unit (5) is interchangeable and projects from the said first support (3), and is designed to allow angular positioning around a second axis (A).
  - 2) Operating head as claimed in claim 1, wherein the said second axis (A) is orthogonal to the said first axis (C).
  - 3) Operating head as claimed in claim 1, wherein the said first support (3) incorporates a power transmission system and means designed to connect the said power transmission system to the said chuck unit (5).
  - 4) Operating head as claimed in claim 3, in which the said chuck unit comprises a power chuck.
  - 5) Operating head as claimed in claim 3, in which the said chuck unit comprises a motorised chuck.
  - 6) Operating head as claimed in claim 1, in which a rotating support (16) subject to the action of means designed to control its rotation around axis (A), is fitted to the said first support 3, the said chuck unit being mounted on the said rotating support.
  - 7) Operating head as claimed in claim 6, wherein the said rotating support is fitted with couplings 25 and 26 designed to connect the chuck unit to electrical and hydraulic power supply devices, and with locking assemblies designed to lock the said chuck unit onto the said support.

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8) Operating head as claimed in claim 6, wherein the <sup>AB</sup> said power transmission system comprises a drive with shafts (6, 8 and 10) and bevel gear pairs (7 and 9) <sup>of</sup> on one side connected to motor systems present in the structure of the machine, and <sup>of</sup> on the opposite side presenting a coupling (11) for connection to kinematic devices present on the said chuck unit.

9) Operating head as claimed in claim 7, wherein the said locking assemblies consist of grippers (15) designed to engage shanks (14) which are integral with the <sup>AB</sup> support of the said chuck unit.

10) Operating head as claimed in claim 6, wherein a chamber (30) having walls made of a deformable material is fitted around the said rotating support (16), which said chamber is connected to means designed to introduce a pressurised fluid into it.

11) Operating head as claimed in claim 6, wherein the <sup>AB</sup> said support (3) is fitted with means (18, 19) designed to control the rotation of the said rotating support (16) around an axis "A" orthogonal to the said first axis "C".

12) Operating head as claimed in claim 8, wherein a ring-shaped chamber (21), connected on one side <sup>of</sup> to exhausting devices and on the <sup>AB</sup> other to ducts (23, 24) which terminate close to the coupling of the tool, is fitted to the <sup>AB</sup> said sleeve 2.

13) Operating head as claimed in claim 12, wherein the <sup>AB</sup> said duct (23) is connected to the said ring-shaped chamber (21) via a <sup>rel</sup> rapid coupling (22), and that the <sup>AB</sup> said duct (24) is integral with the said chuck unit and connected to the said duct (23) via a coupling designed to allow it to rotate

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in relation to duct (23).

14) Operating head for automatic machine tools, including:

- a first support (3), fitted so that it can rotate around a first axis (C) on a structure which moves along a set of three Cartesian axes
- 5 • a second support (16), fitted to the said first support (3) in such a way that it can rotate around an axis (A) orthogonal to the previous one
- an interchangeable chuck unit, fitted to project from the said rotating support (16) <sup>second</sup> AB which
- 10 • a power transmission system (6, 7, 8, 9, 10) with a coupling for connection to a drive (12) connected to a chuck mounted on the said chuck unit (5).

and is fitted with means (18, 19) designed to control the rotation of the said rotating support 16 <sup>second</sup> around the said <sup>AB</sup> second axis (A), and means (30) designed to lock the <sup>AB</sup> said support (16) during rotation. <sup>not clear</sup>

- 15 15) Operating head as claimed in claim 14, wherein the said means designed to lock the <sup>AB</sup> said support (16) during rotation are constituted by a chamber (30) having walls made of deformable material, which said chamber is connected to means designed to introduce a pressurised fluid into it.